



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ARTICLE XIII.

Description and Notices of new or rare Plants in the natural Orders Lobeliaceæ, Campanulaceæ, Vacciniæ, Ericaceæ, collected in a Journey over the Continent of North America, and during a Visit to the Sandwich Islands, and Upper California. By Thomas Nuttall. Read December 3, 1841.

ORDER LOBELIACEÆ. (JUSSIEU.)

TRIBE I. DELISSEACEÆ, (PRESL.)

CLERMONTIA. (GAUDICHAUD.)

CLERMONTIA **macrophylla*; arborescent; leaves very long, oblong, lanceolate, shortly acuminate, glandulosely serrulate, attenuated with a rather long petiole; beneath minutely pilose along the veins; peduncles stout, mostly two-flowered, much longer than the lanceolate, acuminate bractes, about the length of the petioles; tube of the calyx turbinate, about twice the length of the connivent lobes; lobes of the corolla linear, the length of the calyx; the upper segments connate.

HAB. Oahu. A spreading tree about twelve feet high. The ripe fruit a rather solid berry, about the size of a small Siberian crab, of a bright orange, and frequently strung as necklaces and chaplets by the natives of the Island. It is also said to be eaten by the birds. The leaf with the petiole about eleven inches to a foot long; near two and a half inches wide.

CYANEA. (GAUD.)

CYANEA *Grimesiana*.—A tree or large shrub, about ten feet high, very lactescent, sending out leaves chiefly at the extremities of the branches, which

are smooth and deep green, from twelve to eighteen inches long and deeply pinnatifid; the petioles beset with spinulose tubercles; leaflets lanceolate, dentate, acuminate, about four to six inches long. Flowers in a short, fastigiate raceme, white, externally striped with dark reddish purple; the corolla falcate, about two and a half inches long, and the segments long and linear. Filaments connate to the summit, free at the base of the anthers; anthers with long, penicillate tufts of white coarse hairs. Berry turbinate; the seed even and lenticular, pale brown, very similar to that of *Clermontia*. It flowers in the winter season, and is indeed a splendid plant.

TRIBE II. CLINTONIÆ, (PRESL. DECAND.)

CLINTONIA *elegans*; OBS.—This, like all the other species, is subaquatic, growing on the margins of perennial ponds: in such situations I found it abundant, near the outlet of the Wahlamet, where it appeared to be biennial or perennial, beginning to flower in April. The taste of the plant is nearly as sweet as that of young lettuce, and it is greedily cropped by deer and other animals. The sap is no ways milky.

CLINTONIA *corymbosa*; HAB. With the preceding, to which it is nearly allied. The lower lip presents a broad, nearly white centre. The capsule is sometimes almost smooth; the petiole one and a half inches long. The flower and its calyx green. Flower one and a half inches long.

SCÆVOLA. (LINNÆUS.)

SCÆVOLA **Plumerioides*; shrubby; axills sericeously bearded; leaves fastigiate, shortly petiolate, obovate-oblong, obtuse, entire and very smooth, subcoriaceous and attenuated at the base; peduncles pubescent, one or two-flowered, very short; bractes minute; limb of the calyx five-parted; corolla bearded within, the segments smooth and ciliate.

HAB. Near the shores of the Island of Atooi. A stout shrub sending up numerous branches, which, as in *Plumeria*, present leaves only at the extremities. These are somewhat fleshy, four or five inches long and about one and a half wide, rounded at the summit, below attenuated, but scarcely petiolate. The axills with a long silky pubescence. Flowers small, white, or pedicels of less than half an inch in length. Divisions of the calyx lanceolate, acute. Indusium of the stigma hairy and bearded. Nut scarcely more than one-seeded. Berry allied, apparently, to *S. montana*, but with a different inflorescence.

*SCÆVOLA *coriacea*; shrubby, low and decumbent, branches ascending; axills sericeous; leaves short, oboval, obtuse, entire, thick and coriaceous, attenuated below; peduncles axillary and terminal, one to three-flowered, the germ bi-bracteolate; calyx almost an entire margin, corolla bearded within, externally smooth.

HAB. On the island of Atooi, near the sea. A very low decumbent shrub, with cuneate-oval, very thick, coriaceous leaves, not much larger than those of *Box*. Flower white, larger than the last, uniformly bearded within. Stile or stigma hirsute, the latter densely bearded. Drupe two-celled, two-seeded. The calyx a slightly crenate cup. The leaf scarcely an inch long, and about half an inch wide. Branches with a white and rough bark, the ascending ones about half a foot high.

*SCÆVOLA *ligustrifolia*; shrubby and smooth, with slender leafy branches; axills of the young leaves shortly bearded; leaves lanceolate, at either end acuminate, serrulate or nearly entire; peduncles axillary, dichotomal, filiform and compressed, as long or longer than the leaves; flower very long, and nearly smooth externally; calyx very shortly and obtusely five-toothed, pubescent; bractes linear, persistent; indusium of the stigma smooth and ciliate, the style pubescent.

HAB. In Oahu; common in the mountains near Honolulu. Flowers rather showy and elegant, white, continuing in a long succession. Every part of the plant smooth, except the calyx, axills, and the exterior of the flower-bud, which are slightly pubescent. Leaves about two and a half inches long, and three quarters of an inch wide. Flower more than an inch long, internally pubescent on the tube. Calyx with five shallow teeth; anthers smooth. The stigma pubescent within the smooth margin. Nut two-celled. Allied to *S. Chamisgoniana*, but the leaves are never toothed, and the older leaves have naked axills.

*SCÆVOLA *pubescens*; shrubby, leaves and branches pubescent; and axills shortly pilose; leaves lanceolate, acuminate at either end, sessile, repandly dentate, the dentures glandular, peduncles dichotomal, compressed, nearly as long as the leaves, bractes linear, lanceolate; corolla elongated, the tube smooth, bearded within as well as the style; berry smooth, two-celled, two-seeded.

HAB. Woods of Oahu, near Honolulu: rare. Apparently allied to *S. mollis*. Leaves thinly pubescent, except when young, green; about three and a half inches long and about an inch wide; the axills minutely bearded. Flower white, a little more than an inch long. The border a little pubescent externally. Calyx of five pubescent short teeth. Bractes longer than the berry, persistent, the former bluish when ripe; peduncles about two and a half inches long, twice forked, six to nine or more flowered. A very elegant and ornamental species.

ORDER *NEMACLADACEÆ. Character the same as that of the genus.
Allied to GOODENOVIÆÆ.

* NEMACLADUS.

Tube of the calyx turbinate, adnate to the ovary, the border five-cleft, nearly equal; corolla ringent, gibbous, five-cleft, without tube, upper lip vaulted, bifid, segments wholly membranaceous, with a nearly valvular æstivation; stamina five, the filaments distinct but connivent, into a tube, with the hair adnate to the corolla; anthers oval, free, or nearly connivent in a circle; stigma annular, bi-lobed, without a proper indusium; capsule semi-superior, many-seeded, below two-celled, the apex dehiscent by four valves; seeds spherical, impressed, punctate and striate, albumen carnose and oily.—A small, much-branched, lactescent, annual or biennial of Upper California; leaves alternate, rarely toothed, above linear and entire; branches dichotomous; flowers minute, white, axillary, on long, filiform peduncles. (The name employed is given in allusion to its numerous and slender branches.)

NEMACLADUS * *ramosissimus*.

HAB. In sandy soils, near St. Diego, Upper California. Lower part of the stem and radical leaves a little hirsute. Primary leaves spatulate, incisely toothed, the rest of the leaves linear, entire and sessile, somewhat carnose and very smooth, about half a line wide; branches very numerous, procumbent and rigid, dichotomous and terete. Peduncles axillary, solitary, filiform and very slender, near half an inch in length. The whole plant spreading out about five or six inches. Calyx with the turbinate base embracing the adnate ovarium; the border five-cleft, somewhat ringent, the segments linear. Corolla monopetalous, small, white, and membranaceous, gibbous, bilabiate, but without tube; upper lip formicate, bifid, the segments falcate and acuminate; the lower lip three-toothed, very short; the dentures ovate, obtuse. Stamens five, with the filaments connivent into a tube, connected at base to the corolla, filaments very slender; anthers free, but connivent into a circle round the stigma, oval, acute, two-celled, white and short. Style one, stigma glandular, hirsute, two-lobed, without any proper indusium, capsule two-celled below, semi-superior, gibbous, the summit fragile, somewhat irregularly four-valved. Seeds numerous, brown and spherical, punctate and rough as in most of the *Lobelias*, but with the punctures arranged in rows or ribs.

OBS. A plant apparently without any proper affinities, constituting a very distinct order, probably between the true LOBELIACEÆ and GOODENOVIÆÆ proper. It has the milky sap, resupinate corolla with membranaceous laminæ,

and nearly the capsule and seeds of LOBELIACEÆ; the free stamens of GOODENOVIÆ, though of a very different character, and with a stigma without indusium, nearly as in the CYPHIACEÆ, but the corolla gamosepalus, and divested of tube.

ORDER CAMPANULACEÆ. (DECAND.)

HETEROCODON.

Calyx foliaceous, five-cleft, or by abortion three or four-cleft, the adnate tube roundish and turbinate. Corolla campanulate, five-lobed, in the lower flowers wanting or minute stamens, five, free, shorter than the anthers. Stigmas three, short. Capsule roundish, membranaceous, with salient angles; three-celled, dehiscing irregularly at the base. Seeds compressed, triquetrous, even. A slender, divaricately-branching annual of Oregon, scattered with almost retrorse, flat hairs, with the aspect of *Campanula perfoliata*. Leaves alternate, short, roundish, toothed and amplexicaule. Flowers solitary, sessile, the terminal ones only perfectly corolliferous. Corolla strictly campanulate, blue, and small, the stigma and style included. (The name alludes to the unequal character of the flower.)

HETEROCODON **rariflorum*. ☉

HAB. Grassy plains of the Wahlamet and Oregon. Root very small, with a few simple fibres. The plant six to twelve inches high, slender, with few branches, often wholly simple; the stem angular, and pilose. Leaves numerous on the lower part of the stem, roundish-cordate, elegantly and very equally dentate, amplexicaule. Flowers solitary, axillary. Segments of the calyx foliaceous, wide and somewhat toothed; in the lower subapetalous flowers only three or four-cleft. Corolla about the size and form of that of *Campanula hederacea*, segments acute. This plant appears intermediate in genus between *Campanula* and *Dysmicodon*.

DYSMICODON, as a section of SPECULARIA, *Endlicher*. *Gen. Plant.* p. 518.

TRIODALLUS. (*Rafinesque*.)

Calyx in the upper flowers five-cleft, in the lower imperfect, or apetalous ones three or four-cleft, the adnate tube cylindric-obconic, compressed, even and without prominent angles. Corolla pelviform, five-lobed. Stamens five, free, filaments smooth, not dilated at base, much shorter than the anthers.

Stigmas three, filiform, revolute. Capsule linear-obconic, even, and compressed, two and three-celled, opening laterally by a small deciduous operculum. Seeds even, sublenticular. North American and Californian annuals, with alternate, amplexicaule roundish or ovate denticulate leaves. Flowers axillary, sessile, blue. Nearly allied to *Specularia*, but with a different habit, calyx and seed; and with the lower flowers apetalous and reduced in the number of their parts.

DYSMICODON *perfoliatum*, stem simple, erect, with the angles hirsute, leaves amplexicaule, broad, ovate or roundish, denticulate; flowers axillary, solitary, or by three's; lobes of the calyx in the lower flowers three and four lanceolate, acute, nearly half the length of the adnate tube. *Campanula perfoliata*, LINN. *Specularia perfoliata*. DECAND. 7. p. 491.

HAB. Throughout the United States, to the shores of the Pacific. Capsule opening about the middle.

DYSMICODON *Californicum*; stem erect, nearly simple, branching from the base, nearly without angles, and somewhat hirsute with spreading or retrorse hairs; radical leaves roundish and petiolate; cauline amplexicaule, ovate obtuse, obscurely crenulate, nearly entire, ciliate; flowers solitary, sessile; the calyx lobes about one-fourth the length of the adnate tube; capsule opening towards the summit.

HAB. In shady woods near Santa Barbara, Upper California. A very slender species allied to the preceding, but perfectly distinct. Lateral capsules two-celled, with three calyx-lobes. The perfect flower I have not seen.

DYSMICODON *ovatum*; stem erect, simple, smooth or somewhat hirsute on the angles; leaves ovate, acute, with very shallow crenatures, amplexicaule, radical ones spatulate-oblong; flowers one to three in the axills, sessile; the calyx lobes about one-fourth the length of the adnate tube; capsule opening towards the summit. *Campanula intermedia*, Dr. ENGELMANN, (non R. and Schultz.) Near Fort Gibson, Arkansas.

Specularia. TORREY, MSS.

HAB. Arkansas and Louisiana. With all the aspect of the first species, producing perfect pelvi-form blue flowers at the extreme summit only; in these the lobes of the calyx are lanceolate, acute,

and as long or longer than its adnate tube. In the lower flowers the capsules are two-celled, and the lobes of the calyx three or four, rarely five. Some plants occur entirely smooth; in others the angles of the stem and the veins of the leaves beneath are pulvulus.

*CAMPYLOCERA.

Calyx in the upper flowers five-cleft, in the lower, apetalous ones unequally three-cleft, with the adnate tube long, cylindric and curved; tube of the perfect flowers, subterete and compressed. Corolla pelviform, five-cleft. Stamens five, filaments very short, equal and smooth. Stigmas two, oval and short. Capsule in the perfect flowers two-celled, subterete, usually opening with one deciduous operculum. Capsule of the imperfect flowers terete, one-celled, with a single parietal placenta, or a trifold, valvular dehiscence at length from the summit to the base, nearly as in *Clintonia*. Seeds even, elliptic, compressed, contorted. An annual of Arkansas, with much the habit of the preceding genus. Stems simple or branching from the base; leaves alternate, lanceolate, nearly entire; flowers solitary, axillary. (The name alludes to the curved, horn-like appearance of the lower capsules.)

CAMPYLOCERA *leptocarpa*; stem hirsute at the angles, leaves ciliate.

β. glabella; stem and leaves nearly smooth. *Campanula leptocarpa*. Dr. ENGELMANN, MSS.

HAB. Arkansas; five to ten inches high. Except the upper surface of the leaves, covered with a minute hirsute pubescence. Leaves lanceolate and linear-lanceolate, the radical ones slightly crenulate. Calyx in the lower apetalous flowers cylindric and curved, with three ringent or unequal lobes, the capsule one-celled, with one of the three valves only placentiferous, and that parietal, as in the rare examples in this order of *Clintonia* and *Lisipoma*. The perfect two-celled capsules three quarters of an inch long, two-celled, linear and compressed, rounded at the sides, somewhat narrower at the base and summit, usually opening with but one opercular valve. In these flowers the five divisions of the calyx border become rigid and spreading, linear and acute. Corolla blue, conspicuous, rather deeply and acutely five-cleft, wholly like that of *Specularia*. The affinities of this plant, indeed, appear to be in the perfect flowers to *Specularia*, and the imperfect ones, in the absence of the corolla, might be mistaken for those of *Clintonia*: the valves are also almost equally as much contorted. The imperfect flowers appear a long time previous to those which are corolliferous. *β.* Fort Gibson, Arkansas. [*Engelmann.*]

* GITHOPSIS.

Calyx five-cleft, the segments long and linear, about the length of the adnate, obconic, cylindric tube. Corolla cylindric-campanulate, deeply five-cleft. Stamens five, free, filaments smooth, very short, not dilated. Stigmas three, revolute. Capsule three-celled, obconic, cylindric, striated, opening *within* the calyx by terminal pores. Seeds acute, ovate, subtriangular. An annual of Oregon. Stems branching from the base, dichotomous; flowers solitary, terminal and lateral, opposite the leaves, small and blue, scarcely exerted beyond the long, leafy lobes of the calyx. Leaves alternate, sessile, serrated, below very small. (Named in allusion to the resemblance of the flowers with those of *Githago segetum*.)

GITHOPSIS * *Specularioides*.

HAB. Plains of the Oregon, near the outlet of the Wahlamet; common. Flowering in May and June, four to ten inches high, more or less branched from the base; above dichotomal, with the upper part of the plant smooth. The flowers terminal or lateral, solitary: a branch usually issues, from the same axill with the lower flowers, producing a sort of irregular straggling cyme. Leaves oblong, or oblong-ovate, sharply serrate, the lower ones minute, the upper from a quarter to half an inch long, one to two lines wide. Adnate tube of the calyx about one-third of an inch long with ten striæ, attenuated below into a thick pedicel; the leaf-like, linear, and sometimes serrulated segments, about the same length. Corolla tubular-campanulate, scarcely longer than the calyx, border rather deeply five-cleft, the segments acute, deep blue, the base whitish. Stamens included, with long linear anthers, and very short, slender, equal filaments. Stigma trifid, short and revolute. Capsule three-celled, opening at the summit *within* the calyx, by the shrinking of the base of the corolla. Seeds numerous and minute, subtriangular, even and brown. Allied to *Specularia*, but with a cylindric capsule, opening only on the inner summit, a corolla approaching campanulate; angular seeds, and a very peculiar habit.

GITHOPSIS * *Specularioides*; *β. hirsuta*. Every part of the plant, except the corolla, more or less hirsute: the capsule with reflected hairs.

HAB. With the above.

* XYLOCOCCUS.

Calyx five-parted, persistent, corolla cylindric-ovate, smooth within, the border five-toothed. Stamina ten, included; filaments long and subulate, pilose; anthers short and compressed, opening by two truncated pores, the summit

biaristate, with the awns reflected. Ovarium globose, the base surrounded by a thick circular nectary. Style short, stigma obtuse. Drupe even, globular, dry, with a very thick, hard and even, spherical nut, by abortion one-seeded. A shrub of California, with alternate, entire leaves, tomentose beneath. Flowers on terminal racemes, red. Drupes smooth, and spherical. (The name derived from *ξύλον*, *wood*, and *κόκκος*, a *berry*; the berry or drupe being of a woody hardness.)

XYLOCOCCUS *bicolor*.

HAB. Monterey, Upper California. A fine shrub three or four feet high, with a smooth brown bark. Leaves nearly the form and size of those of *Rhododendron punctatum*, about two inches long and about three quarters of an inch wide, elliptic, acute, entire, above green and shining, beneath whitely tomentose, young branches pubescent. Racemes erect; pedicels and bractes, as well as the calyx, villous; bractes short. Corolla large, red, internally smooth. Anthers short, the awns about the same length. Drupes spherical, about the size of a grain of black pepper, yellowish, smooth, and shining, with a thin coating of dry insipid pulp, wholly juiceless; the nut spherical and even, without striation, occupying nearly the whole front, the shell exceedingly thick and hard, with a vestige of five cells, all obliterated but one, and that containing a single, oblong, compressed seed. Distinguished from *Arctostaphylos*, by the flower and habit, no less than the fruit: the filaments of the stamina are also proportionably longer, not suddenly dilated at base, but gradually subulate and pilose throughout.

ORDER. VACCINIEÆ. (DECAND.)

DECAMERIUM. (VACCINIUM, species *Linn.* and *Willd.*)

Calyx adnate to the ovary, the border five-toothed. Corolla subcampanulate, five-toothed, stamina ten, included; anthers without dorsal awns, bifid at the apex, with oblique pores; the filaments dilated at base, nearly as long as the anthers. Style scarcely exerted, the stigma capitate-annular. Drupe globose, invested by the calyx, partly ten-celled with ten pyrenæ, or only one-celled; nuts angular, one-seeded, about ten. Seed subelliptic, punctate. North American shrubs, with alternate, entire, oblong, or obovate leaves, flowers in lateral, leafy elongated bracteolate racemes, white, more or less tinged with red, arising from independent buds. Leaves and bractes sprinkled with resinous atoms. The fruit black or glaucous, subacid, and rather agreeable; but often

disliked on account of their indurated nuciform carpels. Allied to *Gaylussacia*, but the habit and geographical range is wholly different; the drupe also not grooved, nor truly ten-celled, but with ten distinct pyrenæ, and the leaves deciduous. (The name alludes to the number and structure of the fruit.)

DECAMERIUM *frondosum*. *Vaccinium frondosum*. WILLD. sp. 2. p. 352. DECAND. 7. p. 566. *V. decamerocarpon*. IBID.

HAB. Common throughout the United States, from Canada to Florida. The drupe of this species appears to be five or ten-celled, with ten nuciform carpels. Berries rather large, blue, and globular, of a pleasant subacid flavour, but disagreeable from the occurrence of the hard nuciform carpels. Flowers small and campanulate, the border reflected. Filaments of the stamina smooth. Albumen large and fleshy. Embryo small and terete.

DECAMERIUM *resinosum*. *Vaccinium resinosum*, AITON. Kew. 2. p. 12. [ed. 1.] DECAND. 7. p. 566.

HAB. Common throughout the United States, and from Canada to Florida. In this species, the bractes and bracteoles are small, the former mere bud scales. Flowers mostly red. The filaments of the anthers somewhat pilose. The drupe or berry one-celled, with a circle of ten angular rough pyrenæ, attached internally to a sort of narrow axis or placenta. Leaves remarkably covered with resinous atoms beneath. Berries black and agreeable, but disesteemed from the presence of the bony carpels.

DECAMERIUM *hirtellum*. *Vaccinium hirtellum*, AIT. Kew. 2. p. 357. DECAND. 7. p. 566.

HAB. The Southern States of the Union, from S. Carolina to Florida. The young leaves before expansion are sometimes almost comescently tomentose. This variety may be deserving of notice as β .* tomentosum. Filaments of the stamina smooth.

DECAMERIUM *dumosum*. *Vaccinium dumosum*. ANDREWS. Bot. Rep. t. 112. DECAND. 7. p. 566.

HAB. From Massachusetts to Florida. A low running shrub, with leafy independent lateral bracteolate racemes. The corolla perfectly campanulate, white, with tints of red, the teeth erect. Berries black, conspicuously crowned with the erect, enlarged border of the calyx; at first glandularly pubescent; not unpleasant, but with the same fault as the preceding, the ten bony carpels being thick and hard, and disposed in a circle without any locular divisions. Filaments of the stamens pubescent, with something of the habit of a *Gaylussacia*.

Obs. This group appears to form a very natural genus. The structure of the fruit is extremely different from that of *Vaccinium myrtillus*, or the true Vacciniums; and all the species, peculiar to the United States, have, again, a different seed from the European type, the spermoderm being impress-punctate. In the present genus, the seeds within the bony putamen, are also similarly punctate.

* BATODENDRON. (*Vaccinium*, species of Authors.)

Calyx adnate to the ovary, the border five-toothed. Corolla campanulate, five-cleft. Stamens ten, included, anthers with dorsal awns, bifid at the apex, opening by long oblique foramina, the filaments smooth, short, and equal. Style exserted, stigma minute, truncated. Berry globose, invested by the calyx, umbilicate, ten-celled, cells three to five-seeded; the seeds sublenticular, punctulate, imbedded in an indurated granular pulp. Albumen large and fleshy. Embryo small.—A small evergreen tree of the southern parts of the United States, intricately branched; leaves lucid, obovate, subserrulate. Racemes lateral and terminal; leafy. Flowers white, long, pedunculate, without bracteoles. Berries black and rather dry, but sweetish, and nearly inedible from the presence of a rough indurated granular pulp. Allied to the preceding genus, but with a very different fruit, and somewhat distinct habit. The name is derived from *βατος*, a *bramble*, the *blackberry* or *bilberry*, and *δενδρον*, a *tree*.)

BATODENDRON *arboreum*, *Vaccinium arboreum*. MARSHALL, MICH. Flor. Bor. Amer. 1. p. 230. PRESL. 1. p. 285. DECAND. 7. p. 567. *Vaccinium Diffusum*. AITON. Hort. Kew. vol. 2. p. 11.

HAB. From North Carolina or Virginia to Florida and west of the Mississippi in Arkansas known by the name of the Farkleberry. A small tree 10 to 20 feet high, with roundish and obovate leaves. Berries black and smooth, but scarcely edible, being filled with a granular pulp almost as coarse as saw-dust. The spermoderm thick, impress-punctate and indurated. The bark of the root is very astringent, and a decoction of it is employed in dysentery and diarrhœa, as well as the dried fruit. (*Elliott*.) Perhaps *Vaccinium leucanthum* of Chamisso may form a second species of this genus.

* *PICROCOCCUS*. (*VACCINIUM*, Species LINN. and Authors.)

Calyx adnate to the ovary, the border five-toothed. Corolla pelviform, five-lobed, shorter than the stamens. Stamens ten, exserted; anthers with short dorsal awns, deeply bifid and very long, opening by elongated, oblique foramina, with bifid or lacerated points; filaments short, pubescent and dilated. Style exserted; stigma an even truncated point. Berry large, globose and pyriform, invested by the calyx, umbilicate, eight to ten-celled, by abortion six to eight-seeded. Seeds roundish and elliptic, puncticulate. North American shrubs, with alternate entire deciduous elliptic leaves. Racemes lateral, leafy, peduncles usually without bracteoles, sometimes axillary. Flowers white. Berries juicy, pale green or purplish, bitter and inedible. (The name alludes to the bitter fruit.)

Picrococcus stamineus. *Vaccinium staminium*, LINN.

HAB. From Canada to Florida, common. (*Deerberry*.)

Picrococcus elevatus. *Vaccinium elevatum*. BANKS and SOLANDER, Decand. 7. p. 567.

HAB. New Jersey to South Carolina and west to the Mississippi, in Ohio, &c. β . In the woods of Mexico between Pachuca and Real del Monte.

*Picrococcus *Floridanus*; leaves ovate or cordate-ovate, acute, at length smooth, peduncles axillary, one-flowered, subbracteolate; corolla but little longer than the five-cleft calyx; dorsal awns of the stamina minute. *Vaccinium Floridanum*. Herb. SCHWEINITZ.

HAB. Florida. (Mr. Cooper.) I have seen only a single branch, in which the flowers appear truly axillar. The calyx is unusually large, corolla small and contracted. The leaves about two inches long, and more than an inch wide.

OBS. There is a remarkable abortion of seeds in the berries of this genus. Sometimes we find scarcely more than one or two, rarely more than six or eight, although the berry is uncommonly large, (near half an inch in diameter sometimes.) The seeds are about the size of those of Mignonette, or a little larger, elliptic-ovate and convex, brown, with a pitted epidermis, and a large, conformable, oily, and fleshy white albumen. In all the seeds I have now had an opportunity of examining, the embryo is wanting. The species here brought together, and proposed as a genus, are, again, a very natural group.

VACCINIUM. (LINN. in part.)

§ I. *Seeds angular, impunctate. Anthers biaristate. † Leaves deciduous.*

VACCINIUM *Myrtillus*, LINN. Near the line of perpetual snow, in the central chain of the Rocky Mountains. (Thornberg's ravine.) *β. microphyllum*, Hooker, Flor. Bor. Am. 2. p. 33. Exactly the European plant, but smaller.

VACCINIUM *ovalifolium*. SMITH.

HAB. In the shady woods of the Oregon, near Fort Vancouver.

VACCINIUM *parvifolium*. SMITH.

HAB. With the above.

VACCINIUM *cæspitosum* *β. *cuneifolium*. Stem low and branching, not cæspitose; leaves all obtuse.

HAB. Plains of the Oregon, near the Wahlamet, common, forming extensive tufts. Six to eight inches high. The berries covered with a dense bloom, but not agreeable.

VACCINIUM *uliginosum*. LINN.

HAB. The White Mountains of New Hampshire. In this species the seeds are numerous, much curved, and acute at each extremity.

† *Leaves sempervirent. Anthers unawned.*

Vaccinium Vitis Idæa.

HAB. Canada, the White Mountains and North-West coast, but I have not met with it in the latter locality.

§ II. *Seeds somewhat oval and rounded, impressed-punctate. Cells of the berry about ten-seeded.*

Anthers unawned; leaves more or less deciduous.

VACCINIUM *corymbosum*, LINN. also *V. Pennsylvanicum*, LAMARCK. *V. virgatum*, AITON. *V. Canadense*, RICHARDSON. *V. Ligustrinum*, MICH. *V. galezans*, MICH. *V. tenellum*, AITON. *V. myrsinites*, MICH.

* METAGONIA.

Calyx adnate to the ovary, the border four or five-cleft. Corolla conic or ovoid, pentangular, of a thick consistence, the border four or five-cleft. Stamens eight to ten included, the anthers bifid, with or without awns, dehiscing by terminal oblique pores. Style included, stigma minutely five-lobed. Berry sub-pyriform or globose, fleshy, conspicuously crowned by

the enlarging calyx, five-celled, with a five-lobed placenta, the lobes separated by the dissepiments. Seeds small and exceedingly numerous, angular and somewhat cuboid, impressed-punctate.—Small evergreen shrubs of South America, extending to Oregon, Mexico, the West Indies, and the southern States of the American Union: a distinct section exists in the Sandwich and Friendly Islands, and perhaps in Madagascar. Leaves generally serrate and small. Flowers usually scarlet or red, as well as the calyx and fruit. Berries of a fleshy consistence, as in those of *Aronia*, usually edible, not juicy or glaucous, as in the whortleberry. Probably a divided genus. But I have no materials for its investigation beyond the limits of the United States, the Sandwich Islands, and a single species from Peru. (The name given is in allusion to the angular form of the corolla.)

§ I. *Berry subpyriform, anthers awned.*

† *Peduncle solitary, axillary, ebracteate.*

METAGONIA *cerea!* *Vaccinium cereum*. FORSTER. Flor. ins. Austral. prod. p. 28.

HAB. Tahiti.

METAGONIA *calycina*, *Vaccinium calycinum*. SMITH. Cyc. no. 7.

HAB. On shelving rocks at the Pari, Oahu. A very humble shrub, with scarlet flowers, calyces and fruit. The berry has exactly the appearance and consistence of that of the *Aronia botryapium*, being crowned with a very conspicuous calyx: its taste is agreeably subacid, and it is frequently employed as a preserve by the missionaries. This, or the preceding species, is the *Ohelo* of the natives, so abundant in the volcanic mountains of Owhyhee.

METAGONIA *penduliflora*. *Vaccinium penduliflorum*, (GAUDICHAUD.) Probably nothing more than a variety of *M. cerea*. Corolla in all the species conic and pentangular.

†† *Flowers racemose.*

METAGONIA *meridionale*. *Vaccinium meridionale*. SWARTZ.

HAB. The mountains of Jamaica.

METAGONIA *corymbodendron*. *Vaccinium corymbodendron*. (DUNAL.)

HAB. In Alpine situations, near the city of Pillao, Peru. The calyx bibracteate. Corolla conic.

§ II. *Anthers awnless, with nearly erect terminal pores. Fruit pyriform or globose.*

METAGONIA PYXOTHAMNUS, *ovata*, *Vaccinium ovatum*. PURSH. 1. p. 290. *V. lanceolatum*. DUNAL. A numerous leaved variety.

HAB. Common on the banks of the Oregon, near the sea. An evergreen, elegant shrub, three to five feet high, and erect. Also in Upper California near Santa Barbara, but with the stems more hirsute. Fruit dry and scarcely edible.

METAGONIA *myrtifolia*, *Vaccinium myrtifolium*. MICH. Flor. Bor. Am. 1. p. 229. *V. crassifolium*, ANDREWS.

HAB. North Carolina to Florida. Flowers small, subcampanulate, pentangular, in contracted bracteolate racemes. Berries rather dry and insipid.

METAGONIA *terniflora*, *Vaccinium terniflorum*, DUNAL. in DECAND. 7. p. 575.

HAB. In Peru, (Pavon.) Calyx four-parted.

METAGONIA *didymantha*, *Vaccinium didymanthum*, DUNAL. in DECAND. ibid.

HAB. In Peru. Calyx five-parted.

METAGONIA? *alaternoides*, *Vaccinium alaternoides*. (HUMB. β . and KUNTH. nov. gen. 3. p. 265.)

HAB. In the Andes of Peru.

METAGONIA *Penæoides*, *Vaccinium penæoides*. (H. B. and KUNTH. 3. p. 264.)

HAB. On the mountain Tanguagua, in Quito. Corolla tubular-campanulate, quadrifid.

METAGONIA **prostrata*; Stem prostrate, pubescent; leaves crowded, oblong-lanceolate, at either end acute, serrulate, beneath strongly nerved, subciliate; petioles pubescent, minute; peduncles short, thick and axillary, one to three-flowered; calyx bibracteolate; corolla conic-ovoid, pentangular, five-cleft; berry pyriform.

HAB. In Peru, between Cuenca and Loxa. (Dr. Jamison.) A prostrate shrub; stems eight to twelve inches long, terete. Leaves very numerous, secund, thick, small and coriaceous, near half an inch long and about two lines wide, serrulations distant and shallow, the lower portion of the leaf subciliate on the margin. Peduncles short and approximate, thick and very smooth, clad with several pairs of bractes, indicating so many abortive flowers. Germ and berry pyriform, smooth, wrinkled and fleshy: segments of the calyx triangular, acute, conspicuously crowning the berry. Corolla conic, pentagonal, about the length of the germ, the border connivent and five-cleft. Every part of the inflorescence, apparently scarlet. Style included; the stigma minutely five-lobed, subcapitate. Filaments pubescent, anthers awnless, short, with terminal and not oblique pores. Berry five-celled, insipid, the cells each containing many more seeds than in the true *Vacciniums*, the seeds brown, punctulate, angular and somewhat cuboid, closely allied apparently to *G. penæoides*. The general colour of the plant, when growing, is purple.

METAGONIA *empetrifolia*, *Vaccinium empetrifolium*. (H. B. and KUNTH. nov. gen. et spec. 3. p. 263. t. 248.)

HAB. In Peru on the mountain Antigoma. Corolla tubular-campanulate, four-cleft, scarlet.

METAGONIA? *acuminata*, *Vaccinium acuminatum*. (H. B. and K. *ibid.*)

HAB. In the mountains of New Grenada and Peru, in Alpine elevations. Flowers white, corolla four-cleft.

METAGONIA *crenulata*, *Vaccinium crenulatum*. (DUNAL. in DECAND. 7. p. 570.)

HAB. In Peru.

METAGONIA *marginata*, *Vaccinium marginatum*. (DUNAL. *ibid.*)

HAB. In Peru.

METAGONIA? *villosa*, *Vaccinium villosum*. SMITH in Rees' Cycl. no. 29.

HAB. In Mexico (MUTIS.) Corolla purple, pentagonal, with the angles villous.

METAGONIA? *Schlechtendalii*, *Vaccinium Schlechtendalii*. G. DON. Gen. Syst. 3. p. 856.

HAB. Mexico. Calyx bracteolate. Berry globose, umbonate.

OBS. The Madagascar species may also, in all probability, be referred to this group of species, with several others; but the whole must now be left to the decision of future observers.

ORDER ERICACEÆ.

TRIBE ARBUTEÆ. DECAND.

ARBUTUS *Menziesii*; not uncommon on the banks of the Oregon, below Fort Vancouver, in rocky places, where it becomes a tree thirty to forty feet high. The flowers abundant, yellowish-white; the berries orange yellow, dry and coated with a thin layer of granular tubercular pulp. Very nearly allied to *A. Andrachne*.

ARCTOSTAPHYLOS. (GAL. DECAND.)

† *Fruit even, berried. Leaves coriaceous, persistent, mostly entire.*

ARCTOSTAPHYLOS *uva-ursi*.

HAB. Around Vancouver, and the hills of the Oregon to the Pacific.

ARCTOSTAPHYLOS **pumila*; glaucous, dwarf and erect; somewhat closely pubescent; leaves obovate, obtuse, entire, lucid above, below narrowed with a petiole; flowers on short terminal bracteate racemes; pedicels obtusely bi-bracteolate at base; corolla bearded within; awns of the anthers slenderly hirsute, nearly twice their length, filaments sparingly bearded, twice the length of the anthers; calyx ciliate.

HAB. Round Monterey, Upper California. Flowering in March and April, very much like *A. uva-ursi*, but a low erect shrub about half a foot high, branching from the base and forming tufts. Stems brown and smooth, branches villous as well as the young leaves beneath, the leaves at length smooth. Flowers white, in short rounded racemes. Corolla verticose-ovate, the border reflected, densely bearded within towards the orifice. Segments of the calyx slenderly ciliate: bractes linear, reflected, about the length of the villous short petioles. Awns of the anthers very long and hirsute; the filaments with a few straggling hairs at the base.

ARCTOSTAPHYLOS **acuta*; glaucous, dwarf and erect, pubescent, leaves obovate or oblanceolate, with a short acute point, at length nearly smooth, below narrowed with a petiole; flowers in short terminal bracteate racemes, the pedicels minutely bibracteolate at base; corolla pubescent within; awns of the anthers slenderly hirsute, about their length, filaments smooth.

HAB. With the above, for which it might be mistaken as a variety, but the leaves are usually broader, and the flowers smaller and striated with pink.

* XEROBOTRYS.

ARCTOSTAPHYLOS, but the corolla four or five-toothed. Stamens eight to ten. Ovarium subglobose, the base surrounded by a thick, circular, entire nectary. Berry globose, dry and farinaceous, containing three to five triangular grooved nuts, the nuts one, two or three-seeded; one, two or three-celled. The cells tortuous. Seeds curved and elongated, sempervirent.—Shrubs of Upper California, leaves entire or serrated; racemes contracted, terminal, flowers white or rosaceous. Berries yellow, spherical, dry, juiceless and insipid. Nearly allied to *Xylococcus*, but the flower that of *Arctostaphylos*, and the structure of the fruit distinct from both. (The name from *ξηρος dry*, and *βοτρυς, a grape or berry*, in allusion to the nature of the fruit.)

XEROBOTRYS *tomentosus*, *Arbutus tomentosa*. PURSH. Flor. Bor. Am. 1. p. 282. HOOKER, Flor. Bor. Am. 2. p. 36. Fig. 130. *Arctostaphylos tomentosa*. DOUG. DECAND. 7. p. 585. *Andromeda? bracteosa*, DECAND. Prod. 7. p. 607.

HAB. Monterey, Upper California; common. A bush growing in tufts about three feet high. Flowers white, or with a slight rose tinge; leaves generally entire. Berries yellow, as large as pepper corns, spherical and pilose, with a dry, perfectly insipid farinaceous pulp, containing mostly about three obtusely three-sided nuts, with two other abortive ones, each containing two or three cells, with a single elongated seed, in each filling the tortuous cavity of the nut. Our plant is nearly ferruginous.

XEROBOTRYS *argutus*. *Arctostaphylos tomentosa* $\beta?$ *arguta*, DECAND. ib. Certainly not our species, which is very rarely even minutely serrulate.

XEROBOTRYS? *cordifolius*. *Arctostaphylos cordifolia*. LINDL. DECAND. Prod. 7. p. 586.

XEROBOTRYS? *glaucus*. *Arctostaphylos glauca*. IBID. DECAND. Ib.

XEROBOTRYS **venulosus*; erect; branchlets, petioles and margins of the leaves pubescent; leaves elliptic, or elliptic-ovate, acute, sometimes subserrulate, rather long petiolate, thick, smooth and shining; racemes terminal, corymbose; bractes scale-like, very short; calyx ciliate; corolla bearded within; filaments pilose; awns of the anthers very long; the berry globose and smooth. *Andromeda?* *venulosa*. DECAND. Prod. 7. p. 607.

HAB. Round Monterey, Upper California. A shrub about a foot high, at length wholly smooth. Branches brown and smooth, those of the young shoots, hoary and villous, clad with the persisting brown bud scales. Leaves about an inch long, half to three quarters of an inch wide, thick and mostly acute at base, green on both sides, even and reticulated, so that both surfaces appear similar. Flowers white, in short crowded fastigiate racemes. Bractes almost imbricated, ovate, acute, pubescent, not half as long as the short peduncles, which are bibracteolate at base. Berries smooth, depressed-spherical, of a similar form and structure with those of *X. tomentosus*, corolla short and ovate.

TRIBE ANDROMEDEÆ. (Ital.)?

GAULTHERIA *Shallon*.

HAB. In shady woods, Oregon, very common. About two feet high, and filling up extensive tracts. The berries black, and somewhat agreeable.

* PORTUNA. (ANDROMEDA, PURSH.)

LEUCOTHÖE, but with the anthers bifid, biporous, and dorsally awned at the base, the filaments smooth. Capsule globose. Seeds six to ten in a cell, oblong, flat and alated or membranaceous, imbricated longitudinally, with a terminal hylum.—An evergreen shrub of the Southern States, with coriaceous, elliptic, ciliate serrulate leaves, and terminal panicles of white flowers, the corolla ovate-cylindric. (The name alludes to its proximate relation to *Leucothöe*.)

PORTUNA *floribunda*. *Andromeda floribunda*. PURSH. Flor. Bor. Am. 1. p. 488. CURT. Bot. Mag. t. 1566. Bot. Reg. 807. *Leucothöe floribunda*, D. and G. Don. *Zenobia floribunda*, Decand. 7. p. 598. Capsule as large as a pepper corn. The five lobes of the placenta, at the summit of the capsule. Seeds longitudinally arranged, unusually large.

* EUBOTRYS. (ANDROMEDA, LINN.)

Calyx five-parted, bibracteolate at base. Corolla cylindric subovate, the border five-toothed, reflected. Stamens ten, filaments lanceolate, flat and smooth, about the length of the anthers; anthers bifid, the summit four-awned. Style filiform. Stigma truncate, subcapitate. Capsule five-celled, five-valved, depressed-globose, dissepiment medial. Seeds minute, numerous, angular and flatly compressed.—Deciduous leaved shrubs of the United States, with the flowers in secund, cauline, or axillary simple racemes. Flowers white. (The name alludes to the remarkable racemose inflorescence.) Somewhat allied to *Zenobia*, but very different in habit, and inflorescence: the seeds also minute and flat, while in *Zenobia* they are rather large, roundish and angular.

EUBOTRYS *racemosa*; nearly smooth; leaves oblong, acute or acuminate serrulate; racemes elongated lateral; bractes none, or deciduous. *Andromeda racemosa*, LINN. *Lyonia racemosa*, DON. 11. cc. *Zenobia racemosa*, DECAND. 7. p. 598.

HAB. From Canada to Georgia. Divisions of the calyx lanceolate, acute, the base subtended by two similar bracteoles. Flowers white.

EUBOTRYS * *bracteata*; smooth leaves, oblong-lanceolate, coriaceous, acute, serrulate; racemes axillar and terminal, bracteate; bractes linear.

HAB. East Florida, (Mr. Ware.) A very imperfect specimen, not advanced to flowering. The leaves thick and rigid.

PHYLLODOCE. (SALISBURY.)

PHYLLODOCE *Grahamii*, *Menziesia Grahamii*. HOOKER, Flor. Bor. Amer. 2. p. 40. *M. empetriformis*, GRAH. in Bot. Mag. t. 3176.

HAB. Near the summit of the central range of the Rocky Mountains in Thornberg's ravine. Many specimens differ in the paucity of flowers, there being only three or four together; the peduncles are also somewhat glandularly pubescent. The corolla is campanulate and pale red. The general aspect and size is that of *P. laxifolia*, but the flowers are smaller.

MENZIESIA *ferruginea*.

HAB. Around Fort George, near the estuary of the Oregon.

LEDUM. (LINN.)

* LEDADENDRON. *Capsule subglobose; filaments pilose towards the base; stigma annulate, five-lobed.* A tall sempervirent shrub, with alternate entire leaves, smooth on both surfaces, beneath covered with resinous scales. Flowers umbellate, white.

LEDUM **glandulosum*; a tall and stout shrub, leaves elliptic, entire, mostly obtuse, but mucronulate, long petiolate, smooth on both surfaces, beneath paler and resinously atomiferous; capsule globose-ovate.

HAB. In the central chain of the Rocky Mountains, on the sides of the mountains which close up Thornberg's ravine, growing in extensive thickets, the bushes four to six feet high, and as large as those of *Kalmia latifolia*. Bark brown and smooth. Branches coming out in circles at length from the base of former corymbs. Leaf an inch to an inch and a half long, three quarters of an inch wide; petiole half an inch long. Every part of the plant in a young state, except the corolla and upper surface of the leaves, scattered with shining yellow resinous scales. Leaf paler beneath, dark green above. Peduncles one half to three quarters of an inch long, corymbose. Calyx five-lobed, small, the segments oval, obtuse, ciliated. Corolla of five white, broad, oval petals. Stamens ten, filaments long, subulate, pilose below; anthers oblong biporose. Style about the length of the stamens, thickened above, annulate with five linear lobes within. Capsule roundish ovoid, pubescent as well as glandular and scaly, five-celled, five-valved, the axis pentangular, dehiscing at the base. Seeds numerous, subulate, alated at either end. Quite similar, but smaller than in *L. latifolium*. The habit of this plant approaches to that of *Kalmia*.

ORDER EPACRIDEÆ. (B. BROWN.)

CYATHODES *Tameiameia* and *C. Banksii*.

HAB. On high hills near Kolao in the Island of Atooi.

ORDER PYROLACEÆ. (LIND.)

PYROLA. (SALISBURY, DECAND.)

PYROLA **elata*; leaves round or oval, obtuse, attenuated below, minutely crenulate, about the length of the petiole; stipules long, lanceolate, acuminate; scape angular and very tall; calyx lobes lanceolate, acute; corolla spreading; stigma five-lobed.

HAB. Shady woods of the Oregon, near the confluence of the Wahlamet. Caudex creeping and extensive, remarkable for its numerous, long, narrow stipules. Leaves two inches or more long, about an inch and a half wide, very dark green. Sometimes as round as in those of *P. rotundifolia*, to which it is very closely related. Scapes eighteen to twenty inches high! with about two free scales. Bractes lanceolate, acuminate, about the length of the pedicels. Flowers bright, rose red and fragrant, rather smaller than in *P. rotundifolia*. Petals elliptic-oblong. The crenulations of the leaves scarcely sensible. A majority of the leaves are oval.

PYROLA bracteata.

HAB. Dark fir woods of the Oregon, near Fort Vancouver. As the flowers advance the bractes appear, as in other species, no longer than the pedicel. The flower of this species is also strongly tinged with red, and very similar to that of *P. rotundifolia*; the stipules are acuminate, as in the preceding.

PYROLA minor.

HAB. Base of the White Mountains of New Hampshire. (Pickering.)

PYROLA secunda; β . * leaves roundish-ovate, minutely crenulate, obtuse.

HAB. Blue Mountains of Oregon, not far from the River Oregon.

§ * SCOTOPHILA.—*Seeds minute, nearly spherical, terminated at either extremity by a small reticulated roundish membrane. Anthers with short wide basal inverted pores.*

PYROLA aphylla.

HAB. In the shady pine woods, round Fort Vancouver. Occasionally it produces, near the root, and on infertile shoots, a few small, ovate or lanceolate greenish leaves, but it is generally clad only with whitish scales. By the seed, this species makes a near approach to *Pterospora*. A variety also occurs with lanceolate, acuminate divisions to the calyx, which may be called β . * *leptosepala*.

MONESES. (SALISB. DECAND. PYROLÆ. LINN.)

MONESES * *reticulata*; leaves roundish-ovate, dentate, reticulately and prominently veined; calyx ciliate; anthers as long as the filaments. *Pyrola uniflora*. HOOKER, Flor. Bor. Am. (in part.) 2. p. 45.

HAB. Shady fir woods of the Oregon, not far from the sea. Nearly allied to *M. grandiflora* DECAND.; but the leaves are strongly toothed, with elevated reticulations.

CHIMAPHILA umbellata.

HAB. In the shady woods of the Oregon, towards the sea. Larger than usual, and with the leaves acute. The flowers I have not seen.

PTEROSPORA *Andromedea*.

HAB. The forests of the Blue Mountains in Oregon. Seed nearly spherical, acute at each end, striated, terminated above by a very broad, scale-like, dilated, round, reticulated, transparent membrane, many times broader than the seed.

HYPOPITYS *Americana*. (*H. multiflora* β . *Americana*, DECAND.)

HAB. Shady forests of the Oregon.

MONOTROPA *uniflora*. (LINN.)

HAB. With the above.